

REMARKS

The present amendments and remarks are in response to the Office Action mailed May 22, 2003, where all claims were rejected. Claims 16-20 have been canceled, without prejudice. Claims 1-15 are currently pending before the Examiner.

Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following responsive remarks. For the Examiner's convenience and reference, the Applicants' remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the Office Action mailed May 22, 2003:

- 1) claims 1-5 and 9-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over EP 960837 (hereinafter "Tognetti" and previously referred to as "Mauro") in view of U.S. Pat. No. 5,714,236 (hereinafter "Withington");
- 2) claims 6 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tognetti in view of Withington, and further in view of U.S. Patent No. 4,256,493 (hereinafter "Yokoyama");
- 3) claims 7 and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tognetti in view of Withington, and further in view of U.S. Patent No. 4,136,076 (hereinafter "Daniels"); and
- 4) claim 8 was rejected under 35 U.S.C. 103(a) as being unpatentable over Tognetti in view of Withington, and further in view of U.S. Patent No. 6,283,589 (hereinafter "Gelbart").

Rejections under 35 U.S.C. 103(a)

The Examiner has rejected claims 1-15 under 35 U.S.C. 103(a). In every rejection made by the Examiner, Tognetti is cited as the primary reference and Withington is cited as a secondary reference. Certain dependent claims are rejected using additional references. All of these rejections are respectfully believed to be based on an erroneous interpretation of the prior art when taken as a whole and applied to the presently claimed invention.

Tognetti in view of Withington

Claims 1-5 and 9-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tognetti in view of Withington. Independent claim 1 provides a method for digitally printing on an article comprising:

- (a) applying a fluid glazing material to an article creating a coated surface on the article;
- (b) jetting a chromophore-containing fluid onto the coated surface; and
- (c) firing the article.

Independent claim 9, as amended provides a method for digitally printing on a ceramic article comprising:

- (a) applying a fluid glazing material to an article creating a coated surface;
- (b) jetting a chromophore-containing fluid onto a transfer medium;
- (c) adhering the transfer medium to the coated surface; and
- (d) subsequently firing the article having the transfer medium adhered thereto.

As the Examiner is aware, the prior art relied upon must contain some motivation for one skilled in the art to modify or combine references. In rejecting claim 1, the

Examiner has failed to point to anything in Tognetti that would even suggest that a jetting process could be used to apply chromophores to an article for firing. In other words, in order to properly combine Tognetti with Withington (or any other ink-jetting reference for that matter), there has to be some motivation in Tognetti to combine it with a reference that teaches ink-jetting as a step. The motivation provided in the office action by the Examiner is completely unrelated to the method step that is absent in Tognetti. Specifically, the Examiner stated as follows:

"It would have been obvious to one having skill in the art at the time the invention was made to modify the teaching so Tognetti et al to use an ink jet print head as taught by Withington et al. The motivation of doing so is to obtain a high speed and high resolution." See page 3 of office action dated May 22, 2003.

This motivation is not adequate. The motivation must come from the references. Tognetti does not teach that high resolution is a goal, or is even desired. Additionally, neither Tognetti nor Withington teach high speed as a goal, as both processes are comparatively slow due to the rate-limiting step of firing. Additionally, Tognetti actually teaches the desire to achieve ". . . a sort of watercolour-type effect, [is] particularly aesthetically pleasing. In obtaining this effect, an important role is played by the waterproofed or semi-waterproofed surface of the tile, done before depositing the decoration comprising the chromophore salts. In fact, during phase 3), the 'washing' and 'bleeding' phase, the colorant salts present in the decoration composition can easily migrate and diffuse over the surface of the tile." See paragraphs 0028 and 0029. Additionally, Tognetti provides numerous other examples that teach away from "high resolution" printing. For example, paragraph 0005, states "[t]he present invention makes available a process for realizing aesthetically-pleasing (sic) decorations on ceramic tiles which can provide interesting and ornamental effects." Additionally, Tognetti teaches the

desire for "causing movement of a part of the decoration itself. In other words, the liquid causes a sort of 'bleeding' of the decoration deposited on the waterproof coat, and takes along with it (at least partially) the chromophore salts contained in the liquid medium part of the decoration." See paragraph 0023. In addition, Tognetti teaches, "[t]he chromophore salts, by effect of the bleeding action of the sprayed liquid, are distanced from the original deposit zone and are thus spread more or less randomly over the glazed surface." See paragraph 0024. Further, Tognetti teaches, "[t]his operation contributes to further bleeding of the chromophore salts over the surface of the tile and thus a further spreading of colours." See paragraph 0025. Still further, Tognetti teaches, "[t]he decoration which emerges following washing and blowing, and subsequent firing, is characterised by haloes, mottling and chiaroscuro zones." See paragraph 0026. Accordingly, Tognetti's silence as to the desire for speed and high resolution, along with the direct teachings of Tognetti related to reducing resolution for unique effects are incompatible with the Examiner's motivation to combine these references.

Reconsideration on these grounds is respectfully requested.

The above, in conjunction with the fact that the specification of Tognetti discusses the "thickening" of the compositions to be applied (See paragraph 0004, 0041, and 0042), provides an additional basis for the fact that Tognetti cannot be combined properly with Withington, or any other similar ink-jetting reference. In furtherance of this idea, Tognetti also teaches application of colorant by silk-screening, direct printing, rotogravure (see para. 0019 and Abstract). In one embodiment, the glazed surface is taught to be decorated with one or more silk-screen applications, using known-type inks composed of colorant powders and a traditional medium. Ink-jetable liquid vehicle for carrying chromophores is NOT a traditional medium. As the methods of the present

invention require jetting, the use of a more viscous “traditional” medium teaches away from looking to compositions that can be jetted from an ink-jet pen. Compositions applied by silk-screening or rotogravure are not jettable compositions.

As stated previously, it is important to note that ink-jettable compositions differ substantially from compositions that are applied by other methods. Particulate size, fluid viscosity, and other variables are very important considerations taken into account in making a composition that is capable of use in ink-jet applications. Ink-jet printing requires much different viscosities and printing fluid characteristics compared to the printing of Tognetti. For example, jettable fluids must be capable of flowing through microchannels within the ink cartridge. Additionally, the exit orifice of the ink-jet pen are often less than 200 micrometers. Thus, particulates, if not properly configured, can tend to clog these microchannels and orifices.

With further respect to these rejections, the Examiner stated in the Office Action, “Tognetti et al. disclosed a method for printing on an article using any types of printing process.” See page 2, lines 3-5. This is not an accurate restatement of Tognetti. Tognetti only references printing process such as silk screening, direct printing, rotogravure, etc. Ink-jet printing would not be considered to be within this category of printing by one skilled in the art. With respect to claims 2 and 10, the Examiner also states that Tognetti teaches an “underprinting agent.” This is also a misstatement of the teachings of Tognetti. Specifically, Tognetti states the following: “. . . the forming on an upper glazed and non-vitrified surface of a tile of a waterproof or semi-waterproof surface, by means of the application of a continuous and insulation layer of an appropriate material, either waterproof or semi-waterproof . . .” See page 2, lines 33-35. How does this support the notion that the glazes described in Tognetti teach of underprinting agents as defined by

Applicants on pages 9 and 10 of the present specification? An underprinting agent, as defined by the Applicants, includes chemicals that . . . interacts with a chromophore compound to form an insoluble precipitate at or near the surface of the glazing fluid or article itself, or otherwise alters the solubility and/or mobility of the chromophore”(see page 9, lines 8-12). An underprinting agent enhances "high resolution" in ink-jet printing by precipitating the colorant at the location of printing. This concept is not even discussed in Tognetti, which reference also teaches that the waterproof coating allows for "bleeding" of the chromophore salts.

The Applicant is confident that the above distinctions are sufficient to overcome the combination of Tognetti and Withington with respect to claims 1-5 and 9-13. However, claim 9 has been amended to more distinctly set forth the scope of the invention, and includes claim elements that provide an additional basis for withdrawal of this rejection. Specifically, the Examiner has cited page 2, line 13 of Tognetti as providing an analogous structure to the transfer medium of claim 9. This line discusses “. . . a simple silk-screening application (roller or direct) . . .” Thus, the Examiner is also pointing to a silk-screening application as the transfer medium. In other words, on the one hand, the Examiner cites silk-screening as a printing process in general that would lead one skilled in the art to look to other printing methods, and on the other hand, cites the silk-screener as a transfer medium. The Examiner cannot have it both ways, particularly in light of the claim amendment related to firing the transfer medium with the article.

As clearly set forth in claim 9, multiple distinct printing steps are required. For example, the claim can be viewed as requiring two printing steps: b) printing by jetting onto a transfer medium, and c-d) printing on the article by firing the article having the

transfer medium adhered thereto. As Tognetti does not teach adhering the silk screen to the coated surface, and surely does not teach firing the article with the silk screen adhered thereto, reconsideration of independent claim 9 on these grounds is respectfully requested.

Tognetti in view of Withington and Yokoyama

The Examiner has rejected claims 6 and 14 under 35 U.S.C. 103(a) as being unpatentable over Tognetti in view of Withington, and further in view of Yokoyama. Apparently, Yokoyama was specifically sought out for its teachings of a chromophore-containing fluid having nitrates, chlorides, acetates, chromates, citrates, or sulfates.

As stated previously, the combination of references is only proper when there is motivation within the prior art references to do so. Accordingly, the previous discussion pertaining to the improper combination of Tognetti and Withington is incorporated herein by reference. Briefly, Tognetti teaches printing on a firable material by means that results in "bleeding," "haloes," and "randomly spread chromophores." Alternately, Withington teaches ink-jet printing on a firable material. Additionally, Yokoyama teaches ink-jet printing, which is exemplified by printing letters (col. 8, ln. 8), but does not teach printing on a firable material. In view of the foregoing, the combination of Tognetti and Yokoyama is improper because of the same reasons employed in showing the lack of motivation for the combination of Tognetti and Withington. Accordingly, the inclusion of Yokoyama does not cure the defects within Tognetti and Withington, and does not provide any motivation to be combined with these references. Thus, the combination of Tognetti, Withington, and Yokoyama is improper by lacking any motivation from any of

the references. Reconsideration and withdrawal of the rejections to claims 6 and 14 is respectfully requested.

Tognetti in view of Withington and Daniels

The Examiner has rejected claims 7 and 15 under 35 U.S.C. 103(a) as being unpatentable over Tognetti in view of Withington, and further in view of Daniels. These claims are drawn to identifying the specific metal ions of the "transition metal sulfate salt."

The Applicants assert the Examiner has misconstrued the teachings of Daniels by stating, "Daniels teaches the metal ion provided by the transition metal sulfate salt is selected from the group consisting of cobalt, nickel, and tin." However, Daniels is entirely devoid of the terms "sulfate" and "sulfate salt." Daniels uses the terms "cobalt," "nickel," and "tin" only in the context of being used to cross-link a polymer in a lower pH condition. See col. 3, lines 6-13. Thus, contrary to the Examiner's assertion, Daniels does not teach transition metal sulfate salts.

Additionally, the previous discussion pertaining to the improper combination by the lack of motivation to combine Tognetti and Withington is incorporated herein by reference. Here, the Examiner has stated the motivation to additionally combine Daniels with these two references is " . . . to obtain fast drying with good extended print quality." The Examiner cites col. 3, lines 59-60 for support of this motivation. While the citation does state this, the phrase is being taken out of context from the teachings of Daniels, as the Examiner is insinuating the metal ions provide these characteristics. The drying characteristic of Daniels is actually provided by the required "volatile base" (col. 3, ln. 5) and cross-linkable polymers such as BRIGHT PLATE 23 (col. 3, ln. 5-40). Accordingly,

the Examiner's motivation to combine Daniels with the other references comes from other constituents in the Daniels composition and not the metal ions. Therefore, the Examiner's motivation to combine is improper. This, along with the fact that Daniels does not even teach a single "transition metal sulfate salt" shows the Examiner's combination of references lacks motivation and is improper. Accordingly, the Applicants respectfully request withdrawal of the rejections to claims 7 and 15.

Tognetti in view of Withington and Gelbart

The Examiner has rejected claim 8 under 35 U.S.C. 103(a) as being unpatentable over Tognetti in view of Withington, and further in view Gelbart. Claim 8 has been amended to more distinctly set forth the invention, by explicitly requiring the additional coating to be applied to the article prior to firing. Accordingly, the rejection has been rendered moot.

Additionally, the previous discussion regarding the improper combination of Tognetti and Withington is incorporated herein by reference. The addition of Gelbart to the referenced does not cure the above-mentioned defects. Gelbart was merely sought out as a reference because it teaches spraying an additional layer onto a printed sheet. However, Gelbart explicitly states this is done in the alternative to heat fusing the ink onto plain paper. Since claim 8 has been amended to specify that the layer is added prior to firing, Gelbart has been rendered inapplicable. Because of the totality of the previous reasons stated that show a lack of motivation to combine these references, the Applicants respectfully request withdrawal of the rejection to claim 8.

In view of the foregoing, Applicants believe that claims 1-15 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone Brad Haymond at (541) 715-0159 so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

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HW

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